

REMARKS/ARGUMENTS

Claims 1, 9 and 14 have been revised to recite the inherent feature of 5T4 expression as indicative of “stem cells which have activated the differentiation pathway” as recited on page 3, lines 30-31 of the instant application, and as supported by claim 8.

Claim 2 has been revised to recite the inherent feature of the “absence or lack of 5T4 expression [as] no 5T4 expression or a low or negligible level of 5T4 expression” as recited on page 4, lines 16-18 of the instant application as well as the previous language in claim 2. Claim 2 has also been revised to remove the redundant language.

These revisions to the claims raise no new matters for search or consideration as they simply represent the same claimed subject matter with alternative language. No new matter has been introduced, and entry of the above revised claims is respectfully requested.

Specification

Applicants acknowledge the holding in abeyance of the requirement for a new title “that is indicative of the invention to which the claims are directed”. Applicants understand that the abeyance is provided pending determination of the final language of the claims during prosecution.

Alleged issue under 35 U.S.C. §112, First Paragraph

Claims 1-6, 8-10, and 14 were rejected under 35 U.S.C. §112, first paragraph as allegedly not enabled such that a skilled artisan could make and/or use the invention beyond the scope of “mouse embryonic stem (mES) cells or human embryonic carcinoma (hEC) cells”. Applicants have carefully reviewed the statement of the rejection in the Action mailed December 13, 2006, which statement does not include a re-establishment of a *prima facie* case against the claims as revised with the last response. Stated differently, there is no presentation of a *prima facie* case against the revised claims.

Instead, the statement merely addresses Applicants' remarks and ends in a conclusory manner with the assertion that "neither the arguments presented by Applicant nor the amendments to the claims have overcome the grounds of rejection." Because this conclusion is insufficient, and the rejection is misplaced with respect to the pending claims, Applicants respectfully traverse.

The statement in the Action mailed December 13, 2006 includes the following: "the specification ... does not reasonably provide enablement for a method of detecting the differentiation status of any stem cell comprising detecting the presence or absence of 5T4 antibody on the surface of the stem cells wherein the presence of 5T4 antigen represents stem cells in a more differentiated state *and the absence of 5T4 antigen indicates undifferentiated or pluripotent stem cells*" (italics added, see paragraph bridging pages 3-4 of the Action). Applicants respectfully submit that the above quote demonstrates a fundamental misunderstanding of the claimed invention. This misunderstanding appears to form the basis for the alleged rejection.

The presence of a misunderstanding is further indicated in other statements as follows: "It [5T4 antigen] is an excellent candidate as a marker of differentiation, but until *it is demonstrated that ES cell that are negative for 5T4 antigen can differentiate into other cell types and express the 5T4 antigen in the new tissue cell type*, 5T4 antigen can not be considered a marker for differentiation as claimed. The expression patterns for 5T4 antigen are merely descriptive and *identify a candidate stem cell marker*" (italics added, see paragraph bridging pages 6-7 of the Action).

The fundamental misunderstanding indicated by the above quotes is that the claimed invention is directed to the absence of 5T4 antigen as an "marker" for pluripotent stem cells. But a review of the language of claims 1, 2, 8, 9, and 14 shows that the idea of a "marker" is in error because the claims do not feature the identification or detection of stem cells via 5T4 expression.

Instead, the claims feature the detection of 5T4 expression in stem cells as such cells are understood and known to the skilled person in the field. Stem cells are used in the

claimed methods, but are not identified or determined. To the contrary, the detection of 5T4 expression is used as an indication of differentiation status, where its expression indicates differentiated cells.

The features of the claimed methods are in sharp contrast to the apparent basis for this alleged rejection because the claims do not feature detecting the absence of 5T4 antigen as a stem cell “marker”. Similarly, the claims do not feature “ES cell that are negative for 5T4 antigen can differentiate into other cell types and express the 5T4 antigen in the new tissue cell type” as found in the above quote from the statement of the rejection. Additionally, and regardless of whether this feature is required by the claims, the requirement for “demonstration” of this feature indicates a misplaced emphasis on whether the stem cells used in the claimed methods can differentiate into other cell types.

In addition to the misunderstandings and misplaced emphasis in the instant rejection, Applicants point out that there is no objective basis to doubt that 5T4 antigen is not expressed on undifferentiated cells, such as a stem cell. To the contrary, and as recognized in the statement of the rejection, 5T4 is not expressed in mouse embryonic stem cells (mECs).

Moreover, no objective basis has been presented for the allegation that 5T4 expression cannot be used to indicate differentiated cells as featured in the pending claims. Additionally, the question of whether stem cells that do not express 5T4 antigen are totipotent or pluripotent is irrelevant to the pending claims because they do not feature the making, or using, of stem cells as either.

In light of the above discussion, Applicants respectfully submit that no *prima facie* case of non-enablement is present, and this rejection is misplaced against the pending claims. Therefore, this rejection may be properly withdrawn.

Alleged issue under 35 U.S.C. §112, Second Paragraph

Claim 2 was rejected under 35 U.S.C. §112, second paragraph as allegedly indefinite for recitation of “low or negligible”, which is asserted in the statement of the rejection as rendering the claim indefinite.

Applicants respectfully point out that no *prima facie* case of indefiniteness has been presented because the interpretation of “low or negligible” appears to have been made without adequate consideration of the applicable standards regarding permissible claim breadth as non-supportive of an allegation of definiteness.

Nevertheless, claim 2 has been revised with alternative and intended language supported at least on page 4, lines 16-18, of the instant application. Applicants respectfully submit that with the revision, no issue remains and that this rejection may be withdrawn.

Claims 1-6 and 14 were also rejected under 35 U.S.C. §112, second paragraph as allegedly indefinite for recitation of “reflects”, which is asserted in the statement of the rejection as rendering the claims indefinite.

Applicants respectfully point out that no *prima facie* case of indefiniteness has been presented because the interpretation of “reflects” appears to have been made in a vacuum without consideration of the claim context in which the language occurs and without consideration “in light of the specification”.

Nonetheless, claims 1 and 14 have been revised with alternative language supported at least on page 3, lines 30-31 of the instant application. Applicants respectfully submit that with the revision, no issue remains and that this rejection may be withdrawn.

Alleged issues under 35 U.S.C. §102

Claims 1, 3, 8, and 14 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by Southall et al. Applicants have carefully reviewed the statement of the rejection and respectfully traverse because once again, no *prima facie* case of anticipation has been presented.

As an initial matter, Applicants point to a statement on page 10 of the Action mailed December 13, 2006:

“This rejection was intended to demonstrate the breadth of the claims and that it encompasses subject matter not intended in the instant invention.”

The above statement appears to indicate the Office’s understanding that the claimed subject matter does not relate to “carcinoma cells”. This is consistent with a reading of the claims “in light of the specification” as required under well settled law. But given this proper understanding of the claims, the instant rejection nevertheless asserts that the claims encompass “carcinoma cells.” Thus the rejection appears to be mistakenly based upon an incorrect interpretation of the claims.

The erroneous basis of the rejection is clearly seen with respect to claim 8, which recites “wherein binding of the anti-5T4 antibody to cells in the sample is indicative of the presence of 5T4 and *differentiated* stem cells” (italics added). But this is also clearly opposite from the disclosure by Southall et al., who report on work with carcinoma cells that express 5T4 and are acknowledged in the statement of the rejection as “undifferentiated”.

This distinction between the claimed subject matter and Southall et al. is also present in the remaining claims, which have been revised in the interest of advancing prosecution of the instant application and without acquiescence to the instant rejection. Therefore, claims 1 and 14 have been revised to include the inherent features of 5T4 expression as indicative of differentiated cells. This corresponds to the content of claim 2, where the absence of 5T4 expression is indicative of undifferentiated cells. These features are clearly supported by the content of the instant application, such as on page 3, last paragraph, as a representative example.

Given the clearly opposing concepts between the claimed subject matter and the Southall et al. document, Applicants respectfully submit that Southall et al. cannot anticipate the instantly rejected claims. Therefore, this rejection may be properly withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-350-6100.

Respectfully submitted,



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